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United States Court of Appeals for the Federal Circuit

00-1155,-1421
(Reexamination No. 90/003,911)

IN RE MODINE MANUFACTURING COMPANY

and

(Application No. 07/620,729)

IN RE LEON A. GUNTLY, NORMAN F. COSTELLO,

JACK C. DUDLEY, and RUSSELL C. AWE

DECIDED: August 9, 2001

Before MAYER, Chief Judge, SCHALL and DYK, Circuit Judges.

Opinion for the court filed PER CURIAM. Concurring-in-part and dissenting-in-part opinion filed by Circuit Judge SCHALL.

PER CURIAM.

Modine Manufacturing Company ("Modine") seeks review of the decisions of the United States Patent and Trademark Office Board of Patent Appeals and Interferences (1) affirming the final rejection of Claims 1-3, 9, 10, 19, 38-43, 45, 46, and 48-51 of United States Patent Application

Number 07/620,729 ("729 Application"), directed to a "Condenser with Small Hydraulic Diameter Flow Path," Ex parte Guntly, Appeal No. 1999-0375 (Bd. Pat. Ap. & Int. Jul. 15, 1999) (decision on appeal) ("Guntly I"), (2) entering new rejections of Claims 1, 2, 15, 30, 38-41, 43, 45, 47, 55, and 56 of the '729 Application, id., and (3) affirming the final rejection on reexamination of Claims 2, 5, 7, and 14-22 of United States Patent Number 5,372,188 ("188 Reexam"), which originated as a continuation-in-part of the '729 Application and is directed to a "Heat Exchanger for a Refrigerant System," Ex parte Modine Mfg. Co., Appeal No. 1999-0367 (Bd. Pat. Ap. & Int. Jul. 15, 1999) ("Modine II"). We affirm.

We first address the board's finding that the claims of the '729 Application and '188 Reexam are not entitled to earlier filing dates. The '729 Application and '188 Reexam are the fourth and fifth, respectively, in a family of patent applications that date back to United States Patent Application Number 06/783,087 ("A1") filed October 2, 1985. The second application ("A2") was abandoned, and the third issued as United States Patent Number 4,998,580 ("A3" or "'580 patent"), which was the subject of a patent infringement action before the United States International Trade Commission and this court. Modine Mfg. Co. v. United States Int'l Trade Comm., 75 F.3d 1545, 37 USPQ2d 1609 (Fed. Cir. 1996) ("Modine I").

The question of what disclosure is supported by A2, A3, and the '729 Application ("A4") was not directly before us in Modine I. However, we did note that, while A2 and A3 retained Figure 3 that continued to show hydraulic diameters ("HD") of up to 0.070 inches, the replacement in the text of 0.070 with 0.040 "requires the conclusion that the applicant limited the invention described in the refiled applications [A2 and A3] to hydraulic diameters of up to about 0.040 inch." Modine I, 75 F.3d at 1552, 37 USPQ2d at 1613.

Modine argues that the continuous presence of Figure 3 (later renumbered Figure 5) was sufficient and that the limitation to 0.040 inches in A2, A3, and the originally filed '729 Application was not necessary to overcome the prior art. But that is not the issue. The reason for changing 0.070 inches to 0.040 inches in the text is irrelevant to the question of whether the remaining disclosure in the graphs of Figure 3 is sufficient to meet the written description requirement. We conclude that it is not. The revised explanatory text to Figure 3 that described the graph as showing that "heat transfer is advantageously and substantially increased in the range of hydraulic diameters of about 0.015 inches to about 0.040 inches . . ." would lead the skilled artisan to believe that the range possessed by Modine was 0.015-0.040 inches and the presence of data points on the "invention graphs" outside that range is superfluous in view of the clear explanation that 0.015-0.040 inches is the meaningful range for the graphical heat transfer data.

Modine also argued that the incorporation by reference of United States Patent Number 4,688,311 to Saperstein ("311 patent") in A2, A3, and the originally filed '729 Application met the written description requirement because it disclosed the 0.070 inch upper limit. The solicitor persuasively argues that the incorporation was of the method of fabricating the tubes and the fact that that method could be used for tubes with HD up to 0.070 inches is irrelevant. Modine failed to cite the '311 patent in a way that made clear that the range of HD up to 0.070 inches was effectively part of the '729 application. Because A2, A3, and the originally filed '729 Application do not meet the written description requirement for an upper limit of 0.070 inches, substantial evidence supports the board's finding that neither the '729 Application nor the '188 Reexam is entitled to the earlier filing date of A1.

Modine does not dispute that European Patent Applications 0,219,974 ("EP '974") and

0,237,164 ("EP '164") disclose each limitation of Claims 2, 5, 7, and 14-22 of the '188 Reexam and Claims 1-3, 9, 10, 38-43, 45, 46, and 48-51 of the '729 application. Because these claims are not entitled to the filing date of A1, EP '974 and EP '164 are prior art and anticipate the disputed claims. We need not consider the board's additional rejections of these claims.

The board did not sustain the examiner's rejection of Claims 55 and 56, but issued new rejections of those claims as indefinite under 35 U.S.C. § 112, ¶ 2 (1994) because the definition of HD as defined by the curves of Figure 5 in the '729 application defined an infinite number of ranges. Guntly I, slip. op. at 74. Claims 55 and 56 recite HD values "in the range defined by" Figure 5. Id. Modine argues that there is no rule against relying on a graphic depiction to state an HD limitation, but incorrectly cites the board's reconsideration opinion, Ex parte Guntly, Appeal No. 1999-0375 (Bd. Pat. Ap. & Int. Jul. 15, 1999) (Reconsideration Opinion) ("Guntly II"), for the premise that claiming with reference to a graph is well known. The board only noted "the procedure of taking a reading from a graph is certainly well known." Guntly II, slip op. at 11. This provides no support for Modine's position and we find no other.

The board actually rejected the claims because the curves in Figure 5 were based on extrapolations of a single data point by a computer model. The board pointed out that the graph was not drawn to scale and that the non-uniformity of the gradations on the x and y axes prevent any accurate readings of the HD values, particularly at the end points of the curves. Guntly I, slip op. at 28. None of the references cited by Modine refute the board's conclusion that in this case the curves on Figure 5 do not point out and distinctly claim the invention. The argument that our opinion in Modine I determined that Figure 5 shows "improved performance at hydraulic diameters up to 0.070 inch" is incorrect and unavailing. We merely noted that A1 "described the graph as showing improved performance at hydraulic diameters up to about 0.070 inch," and noted that A2 retained the "graph showing improved performance at hydraulic diameters up to 0.070 inch." Modine I, 75 F.3d at 1552, 37 USPQ2d at 1613. In fact, we concluded that, based on the change to the explanatory text accompanying the figure, Modine "limited the invention described in the refiled applications to hydraulic diameters of up to about 0.040 inch." Id.

Claims 30 and 47 stand newly rejected by the board for failing to meet the written description requirement of 35 U.S.C. § 112, ¶ 1 for lack of descriptive support for the claimed range of HD of "no more than about 0.040 inches." The board correctly construed the claimed range of HD to set forth a range "with a lower limit of just above zero," Guntley I, slip op. at 74, and properly held that there is no descriptive support in the originally filed '729 application, or any of the predecessor applications, for any lower limit other than 0.015 inch or about 0.015 inch, id. at 33. Modine's attempt to rely on the incorporation of the '311 patent by reference to support the expanded lower limit is unavailing because it failed to cite the '311 patent in a way that made clear that the range of HD up to 0.070 inches effectively was part of the '729 application. Beyond the incorporated reference, Modine can only rely on Figure 5, which it argues depicts the use of HD values significantly below 0.015 inch. As we stated in reference to Modine's parallel argument regarding descriptive support for an upper HD limit greater than 0.040 inches, the presence of data points on Figure 5 below 0.015 inches is superfluous in view of the clear explanation that 0.015-0.040 inches is the meaningful range for the graphical heat transfer data. Substantial evidence supports the board's rejection of Claims 30 and 47 for failure to provide descriptive support for a lower HD limit below about 0.015 inch.

Finally, we consider the new rejection entered by the board of Claim 15 of the '729 application as obvious under 35 U.S.C. § 103 (1994) over Japanese Patent Number 49-114145 ("Fuso")

(Figure 5) in view, inter alia, of United Kingdom Patent Application 2,058,314 ("Ueda"). Modine does not contest the board's conclusion that Fuso teaches all of the limitations of Claim 15 with the exception of the relevant HD range. Ueda, it argues, should not be combined with Fuso, despite disclosing HD in the range of 0.015-0.03 inches, because it refers to a gravity-dependent device and not to a pressure driven condenser as in Claim 15.

The board appropriately rejected this argument because, while Ueda illustrates a plate condenser, it clearly states that the described invention is equally applicable to tube-type condensers and that the fluid and gas are under pressure rather than flowing largely by gravity as Modine argues. Ueda explicitly teaches the use of flow passages with HD within the claimed range for the purpose of providing the heat transfer surface with a condensate film of greatly reduced thickness, assuring greatly improved heat transfer performance. Substantial evidence supports the board's finding that it would have been obvious to one of ordinary skill in the art to fabricate the flow paths of Fuso with the parameters and HD of Ueda in order to achieve Ueda's expressly stated heat transfer performance advantage.

Modine provided no evidence to show unexpected results between the invention of Claim 15 and the configuration disclosed in Fuso Figure 5 and thus failed to carry its burden to overcome the prima facie showing of obviousness. Modine's evidence of commercial success was similarly infirm because it failed to establish the required nexus between the market analysis and supporting declaration and the claimed invention.

We have considered Modine's alternative arguments regarding nonobviousness and found them to be without merit. The board's finding that the evidence of nonobviousness fails to outweigh the evidence of obviousness established by the prior art is supported by substantial evidence and we agree with its conclusion that Claim 15 is obvious over Fuso in view of Ueda.

FOOTNOTE:

[1] Figure 3 was later renumbered as Figure 5 and thus appears as Figure 5 in the '729 application.

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SCHALL, Circuit Judge, concurring-in-part and dissenting-in-part.

The majority affirms the United States Patent and Trademark Office Board of Patent Appeals and Interferences' ("Board's") affirmance of the rejection of claims 1-3, 9, 10, 15, 19, 30, 38-43, 45-51, 55, and 56 of United States Patent Application No. 07/620,729 (the " '729 Application") and claims 2, 5, 7, and 14-22 of United States Patent No. 5,372,188 (the " '188 patent"). I agree with the majority in all but one respect. Specifically, I would not affirm the rejection of claims 9, 10, 50, and 51 of the '729 application. I reach this result because I do not believe that substantial evidence supports the Board's conclusion that claims 9, 10, 50, and 51 of the '729 application, which recite "a hydraulic diameter in the range of 0.015 to 0.07," are not entitled to the earlier filing date of October 2, 1985. These claims are therefore allowable because the Board did not affirm rejections of them based on art predating October 2, 1985.

For a claim in a later-filed application to be entitled to the filing date of an earlier application under 35 U.S.C. § 120, the earlier application must comply with the written description requirement of 35 U.S.C. § 112, ¶ 1. Lockwood v. Am. Airlines, Inc., 107 F.3d 1565, 1571, 41 USPQ2d 1961, 1965-66 (Fed. Cir. 1997). To meet the § 112, ¶ 1 written description requirement, "the applicant must . . . convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed." Vas-Cath Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991).

In this case, Figure 3, which appears in the '729 application and all of the previous related applications back to the October 2, 1985 application, conveys to someone skilled in the art that the inventor was in possession of a hydraulic diameter ("HD") range of 0.015 to 0.070 inches,

the inventive range recited in claims 9, 10, 50, and 51 of the '729 application. The '729 application and all previous applications state, in their specifications, that Figure 3 depicts "curves based on a heat transfer model for a core made according to the present invention." The curves in Figure 3, which graph the transfer of heat in relation to HD, are labeled INVENTION and extend from 0.015 to 0.070 inches. We even noted in Modine Manufacturing Co. v. United States International Trade Commission, 75 F.3d 1545, 1552, 37 USPQ2d 1609, 1613 (Fed. Cir. 1996), that Figure 3 "show[s] improved performance at hydraulic diameters up to 0.070 inch."

The majority concludes that statements in the '729 application, which were not in the October 2, 1985 application, would lead a skilled artisan to believe that the inventor only possessed a HD range of 0.015 to 0.040 inches, not a HD range up to 0.070 inches. Majority, slip op. at 3. However, these statements do not disavow the HD range of 0.040 to 0.070 inches that is described in Figure 3 as the INVENTION. The inventor merely indicated that a HD range of 0.015 to 0.040 inches is particularly advantageous. Someone skilled in the art, looking at Figure 3, still would recognize that the inventor was in possession of a HD range from 0.015 to 0.070 inches, the invention recited in claims 9, 10, 50, and 51 of the '729 application.

For the foregoing reasons, I respectfully concur-in-part and dissent-in-part.